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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/800,612

03/15/2004

Atsushi Yoshida

3169.70025

1806

7590

08/28/2008

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EXAMINER

WU, QING YUAN

ART UNIT

PAPER NUMBER

2194

MAIL DATE

DELIVERY MODE

08/28/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/800,612

**Applicant(s)**

YOSHIDA ET AL.

**Examiner**

Qing-Yuan Wu

**Art Unit**

2194

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 01 May 2008.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-5 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1, 3-5 is/are rejected.  
7) ☐ Claim(s) 2 is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 15 March 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO-8508)  
Paper No(s)/Mail Date \_\_\_\_\_  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_  
5) ☐ Notice of Informal Patent Application  
6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

1. Claims 1-5 are pending in the application.

#### ***Allowable Subject Matter***

2. Claim 2 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims, in addition to overcoming the 35 U.S.C. 101 and 35 U.S.C 112 2<sup>nd</sup> paragraph rejections below.

#### ***Drawings***

3. Figure 17 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated [Description of drawing in specification, PG PUB 2005/0086031, refer to Figure 17 as a diagram of conventional method ]. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

#### ***Claim Rejections - 35 USC § 101***

4. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

5. Claims 1-5 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

6. Claims 1-5 are additionally rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter because they are lacking utilities. More specifically, these claims recite the limitation “a computer-readable medium recorded with a deadlock pre-detection program for making a computer execute” but failed to indicate what permits the program to be realized (i.e. the computer executable code or program must be stored in a computer-readable medium, and executed by a computer element to perform control of a technical procedure). See MPEP 2106.01.

***Claim Rejections - 35 USC § 112***

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 1-5 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

a. The following terms are indefinite:

i. As per claims 1, it is uncertain whether “the first step and the second step”

on line 11 refers to “a first access step and a second access step” in which the rest of the dependent claims referred to as “the first access step and the second access step”. For examination purpose they will be treated as the same in the remainder of this office action, in addition, applicant should consider using consistent terms to properly refer to its antecedent.

ii. As per claim 5, “the job logic” on line 6 is rejected for similar reason as claim 1 above.

***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 1 and 3-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Teng et al. (hereafter Teng) (“Adaptive Real-time Anomaly Detection Using Inductively Generated Sequential Patterns”), in view of Manganaris et al. (hereafter Manganaris) (U.S. PG Pub 2002/0082886).

11. As to claim 1, Teng teaches a computer-readable medium recorded with a deadlock pre-detection program for making a computer execute:

a first procedure comprising an access step involving an access to any one of a plurality of databases [an event access step, pg. 280, right column, lines 10-13];

a third procedure of acquiring a first access step and a second access step [sequence of access events, pg. 281-282, 3.3.1 Deviation Detection];

a fourth procedure of judging whether a database access sequence based respectively on the first step and the second step is a predetermined access sequence or not; and

a fifth procedure of notifying of, in the case of judging that the access sequence is not the predetermined access sequence, a purport of deviating from the predetermined access sequence [deviation from predetermine sequence is flagged, pg. 278, right column, line 33-pg. 279, left column, line 2; pg. 281-282, 3.3.1 Deviation Detection].

12. Teng does not specifically teach a procedure of reading job logic design information structured of a plurality of process steps, generate a process route configured of at least two access steps, acquiring the first and second access steps from the route. However, Manganaris teaches reading and preparing a current data stream by identifying contextual event information relating to the events and categorizing them (i.e. generating itemsets, which provides data/steps of an event sequence/flow/route) [Manganaris, paragraph 53, lines 1-12; paragraph 23-30].

13. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have combined the access sequence deviation detection of Teng with the teaching of context extraction of Manganaris in extracting data for comparison to predetermine sequences since both Teng and Manganaris are in the same field of endeavor, additionally it would have been obvious to one of ordinary skill in the art to combine the teaching of Teng in mining access sequence with Manganaris since the detection model should not be limited by the content of the

data, rather is insurance claims, intrusion detection or access sequence, and the combination would achieve the predictable result of anomaly detection.

14. As to claim 3, Teng as modified teaches a deadlock pre-detection program according to claim 1, further comprising:

a sixth procedure of having associative relational data read out, which represent associative relations between a plurality of databases; and

a seventh procedure of generating the predetermined access sequence on the basis of the associative relational data [association rules, frequent itemsets, and frequent sequences are generated based on relationship among events, Manganaris, paragraphs 23-51; Fig. 2].

15. As to claim 4, Teng as modified teaches a deadlock pre-detection program according to claim 1, wherein said third procedure involves acquiring the first access step and the second access step next to the first access step from the process route (examiner's interpretation of this limitation as the first step precedes the second access step) [sequence of access events, pg. 281-282, 3.3.1 Deviation Detection], said fourth procedure involves judging whether the database access sequence respectively by the first access step and the second access step is the predetermined access sequence or not, and said fifth procedure involves notifying, in the case of judging that the access sequence is not the predetermined access sequence, that the database access by the first access step is conducted anterior to the database access by the second access step [event A occurred before event B and event B before C, etc, and deviation from this

predetermine sequence is flagged, pg. 278, right column, line 33-pg. 279, left column, line 2; pg. 281-282, 3.3.1 Deviation Detection].

16. As to claim 5, Teng as modified teaches a deadlock pre-detection program according to claim 1, further comprising:

an eighth procedure of having a multi-access description and the process route read out;  
and

a ninth procedure of generating information about a possibility of an occurrence of an anomaly in the case of simultaneously executing the job logic structured of the plurality of process steps on the basis of the multi-access description and the process route [association rules, frequent itemsets, and frequent sequences are generated based on relationship among events, Manganaris, paragraphs 23-51; Fig. 2].

17. Teng as modified does not specifically teach a deadlock. However, a person of ordinary skill in the art can recognize deadlock occurrence as an anomaly and consequently applied the anomaly detection method of Teng as modified to achieve the predictable result of detecting such anomaly.

18. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent No. 5,668,988 to Chen et al., U.S. Patent No. 7,117,191 to Gavan et al., U.S. Patent No. 5,742,811 to Agrawal et al., "Security Audit Trail Analysis Using Inductively



Generated Predictive Rules", to Teng et al., "Mining in a Data-flow Environment: Experience in Network Intrusion Detection", Lee et al., "Data Mining Approaches for Intrusion Detection" and "Learning Patterns from Unix Process Execution Traces for Intrusion Detection" to Lee et al. teach anomaly detection and rule based reasoning systems.

19. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Qing-Yuan Wu whose telephone number is (571)272-3776. The examiner can normally be reached on 8:30am-6:00pm Monday-Thursday and alternate Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng Ai An can be reached on (571) 272-3756. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Meng-Ai An/  
Supervisory Patent Examiner, Art Unit 2195

/Qing-Yuan Wu/  
Examiner, Art Unit 2194